



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of) Art Unit: 2122
Iborra and Pastor) Examiner: unknown
Serial No.: 09/872,333) Docket No: CHG-001.3P
Filed: 06/01/01)
For: AUTOMATIC SOFTWARE PRODUCTION SYSTEM

Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia

INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §§1.97-1.98, the undersigned would like to make the following prior art references of record in the above-identified patent application. The undersigned believes that some of these references may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 C.F.R. §1.56. English language summaries of the Spanish language papers will be supplied in a supplemental IDS when they are received from the client.

All of these references were disclosed in the parent patent application entitled AUTOMATED SOFTWARE PRODUCTION SYSTEM, serial number 09/543,085, filed 4/4/2000 so copies of all the references are not included pursuant to 37 CFR Rule 1.98(d) except that copies of the papers are included herewith on a CD-ROM. Copies of the 1449 Forms submitted in the parent case are submitted herewith.

While this Information Disclosure Statement may contain material information pursuant to 37 C.F.R. §1.56, it is not intended to constitute an admission that any individual reference referred to herein is prior art to the invention disclosed and claimed in the above-identified patent application.

Each reference listed herein may be accompanied by an explanation of its relevance.

While this explanation is believed to generally reflect the contents of the references which the undersigned believes a reasonable examiner might consider relevant and material to the examination of the above-identified patent application, it is not intended that the examiner rely on the description as unfailingly accurate or complete.

A copy of each reference cited herein in PDF or TIFF Group 4 compressed format on CD-ROM is enclosed for the express purpose of providing the examiner with an opportunity to perform an independent evaluation to arrive at an independent assessment of its relevance and materiality, if any, to the claimed subject matter. Where available, complete or partial English language translations of the pertinent portions of non English language papers are supplied herewith. To the extent they are not supplied here, they will be supplied in a supplemental IDS when received from the client. Summaries of some of the papers have not yet been prepared as not all papers have been read yet, but efforts to read them all are ongoing. However, summaries will be provided in subsequent supplemental Information Disclosure Statements.

Cited Art

Letelier, P., et al., "OASIS Version 3.0: Un Enfoque Formal Para el Modelado Conceptual Orientado a Objectos" (In Spanish). ISBN: 84-7721-663-0. Legal Deposit: V-3484-1998, Servicio de Publicaciones de la UPV, SP-UPV 98-4011, Valencia, Spain, 1998.

Pelechano, V., "OO-Method: Implementación de un Entorno Gráfico para el Análisis y Diseño de Sistemas De Información OO" (In Spanish). Master Thesis, 1994.

Pelechano, V., et al., "CASE OO-Method: Un Entorno de Producción Automática de Software" (In Spanish) Actas de la Convenció Informática Latina CIL-95, Barcelona, June, 1995.

Romero, J., "Diseño de un Entorno de Producción de Software basado en el Lenguaje de Especificación OASIS y en la utilización de PowerBuilder como Herramienta de Desarrollo Gráfica y C/S" (In Spanish). Master Thesis, Valencia, March, 1996.

Pastor, O., et al., "An Object Oriented Methodological Approach for Making Automated Prototyping Feasible", Database and Expert Systems Applications, Lecture Notes in Computer Science (1134) pgs. 29-39 Springer-Verlag, 1996, ISBN: 3-540-61656-x, ISSN: 0302-9743, Zurich (Suisse) September 9, 1996 [Pastor 96aO]: Teaches a method of building a formal language specification in a formal language called Oasis of a program to be automatically written. This is done by defining graphic models in an analysis phase where the program requirements are analyzed, to wit: an object model, a dynamic model and a functional model are built. The

object model defines classes of objects. Each class has a signature including attributes, methods and actions and a set of formula of different kinds to define integrity constraints, conditions that must be satisfied, valuations which explain how attributes are changed by events, derivations which relate some attribute values to others, preconditions which determine when an event can be activated, and triggers which introduce internal system activity. The formal language specification is generated in an automated way from the three models to generate a complete system repository where all the relevant properties of the component classes are included. A prototype is then built in an automated way from this formal language specification with two translations: one from the models to an Oasis language specification; two, from Oasis to the selected programming environment. The object model defines aggregation and inheritance hierarchies and agents are introduced to specify who can activate each class service. The dynamic model specifies valid object lives using state transition diagrams and interobject interaction using an object interaction diagram. The functional model captures semantics attached to any change of state of an object. The main idea is to specify how event activation in a given state changes the attribute values. The model specifies how an event changes the values of the relevant attributes through an interactive dialogue. The value of every attribute is modified depending on the action that has been activated, the involved event arguments and present object state. A translator converts the graphic information of the models into Oasis language specification statements. Whole system classes are converted into elementary Oasis classes where attributes are declared (constants, variable and derived), static integrity constraints are declared, derivation formulas for derived attributes and private and shared events are declared. Trigger relationships, event preconditions, process definitions attached to any class and global interactions are obtained from the dynamic model. Preconditions appear as transition labels on the state transition diagram (STD), and process definition is achieved from the paths in the STD. Trigger and global interaction sections of the Oasis specification are obtained in an automated way from the object interaction diagram. Valuation formulas are derived through dialog boxes the analyst uses during the analysis phase while generating the functional model.

Pelechano, V., et al., "Implementación y comprobación de restricciones de integridad dinámicas en entornos de programación orientados a objetos" (In Spanish), II Jornadas Nacionales de Ingeniería de Software, Universidad el País Vasco, San Sebastián, 3-5 Septiembre 1997, pgs. 101-117.

Pastor, O., et al., "Linking Object-Oriented Conceptual Modeling with Object-Oriented Implementation in Java", VIII Conference on Database and Expert Systems Applications, (DEXA'1997), ISGN: 3-540-63478-9, LNCS (1308), Toulouse, France, 1997 [Pastor 97a]; Teaches the OO-Methodology to allow analysts to introduce relevant system information defining a computer program to be automatically written by means of a set of graphical models to obtain a Conceptual Model of the program. This allows a formal language specification to be written at any moment. A Java prototype which is functionally equivalent to the OASIS formal language specification can be automatically generated from the formal language specification by defining an execution model that gives the pattern to obtain a concrete implementation in the selected target software development environment. This is done by precise mapping between formal specification concepts and Java components that implement them. Section 4 of the paper describes how the OO-Method models developed by the analyst are converted to a Java program. Teaches an object model, dynamic model and functional model. Implementation uses Java as a programming language and a relational database as a persistent object repository. The process of generating JAVA code involves binding the execution model to specific features of the selected programming environment. The Execution model has three main steps: access control; object system view; and service activation. Any service execution involves: object

identification; introduction of event arguments; state transition correctness; precondition satisfaction; valuation fulfillment; integrity constraint checking in the new state; and trigger relationships testing.

Pastor, O., et al., "OO-METHOD: An OO Software Production Environment Combining Conventional and Formal Methods", 9th International Conference on Advanced Information Systems Engineering, (CaiSE'1997) ISGN: 3-540-63107-0, LNCS (1250), Barcelona, Spain, June 16, 1997 [pastor97b]:

Pastor, O., et al., "Object Oriented Conceptual Modeling Techniques to Design and Implement a Sound and Robust Oracle Environment" Actas de Oracle OpenWorld 97, Viena (Austria) 7-11 Abstract publicado en Oracle OpenWorld Review pg. 36, April, 1997.

Romero, J., et al., "Una Herramienta de Generación Automática de Software" (In Spanish) In Procs of IDEAS-98 - I Workshop Iberoamericano en Ingeniería de Requisitos y Ambientes Software, Porto Alegre, Brasil, April 1, 1998 [romero98]:

Gomez, J., et al., "The Execution Model: A Component-Based Arquitecture to Generate Software Components from Conceptual Models" In Procs of International Workshop on Component-based Information Systems Engineering, 10th International Conference on Advanced Information Systems Engineering, CAiSE-98 Pisa (Italia), pgs. 87-94, ISSN 1170-487X June 8, 1999 [gomez98]:

Pastor, O., et al., "From Object Oriented Conceptual Modeling to Automated Programming in Java", Conceptual Modeling — ER'98, Lecture Notes in Comptuer Science (1507), pgs. 183-197, Springer-Verlag, 1998, ISBN: 3-540-65189-6, ISSN: 0302-9743, Singapur, November 16, 1998 [pastor98c0]: Teaches the OO-Object model to graphically define object model, dynamic model, and functional model that together comprise a Conceptual Model of the program to be automatically written and translating these models automatically to an OASIS formal language specification. Also teaches an execution model which identifies the system user and determines the set of object attributes and services that the user can see and activate. After connection and establishment of the user's world view, the user can activate services. Service activation involves two steps: building the service activation message; and execution of the message. To build the message: 1) the object server associated with the desired service to be executed is identified; 2) the event arguments are asked for by the interface tier. Once the message is sent, the service execution by the server object is characterized by the occurrence of the following sequence of events: 1) check state transitions; 2) check preconditions, and, if either 1 or 2 is not satisfied, ignore the message and do not activate the service; 3) valuation formula fulfillment; 4) integrity constraint checking; 5) trigger relationship checking. This paper also mentions a tool called IPOST that automatically generates a prototype from an object-oriented analysis model. This paper also mentions translating a Conceptual Model into Java classes using the Execution model by defining the architecture of the classes needed to implement the three tier architecture of the Conceptual Model: the interface tier, the application tier and the persistence tier. Teaches at the interface level definition of a Java access control class which extends a panel with the typical widgets to allow a user to be identified and determine the user's password and class of users to whom he or she belongs. Teaches a system view class which has an instance or object for every active user and displays what objects and services the user is allowed to see and access. Teaches a service activation class which defines a typical web interace for data entry. At the application level, teaches classes that implement the behavior of the business classes. The Java business classes are defined as an implementation of OASIS itnerface (to specify the necessary services to support the execution model structure) and an extension of an object_mediator class. At the persistence level, an object_mediator class is created. It implements the methods for saving, deleting and retrieveing system domain objects that are stored ina persistent secondary memory object repository.

Pastor, O., et al., "Mapping Aggregation from Object-Oriented Conceptual Modeling to Object-Oriented Programming", In Procs of Third International Conference on Object-Oriented Technology, WOON-98, pgs. 59-70, San Petersburgo, Russia, July 2, 1998 [pastor98do] Teaches implementing the aggregation concept in an object-oriented environment, and, in particular, an aggregation concept provided by the formal language OASIS. The paper studies the aggregation concept in OASIS and another specification language called Troll and describes how to implement the aggregation concept in the OO-method based upon OASIS. Implementation using data models and patterns of cardinalities are taught.

Romero, J., et al., "Automatic Object-Oriented Visual Programming with OO-METHOD", Software and Hardware Engineering for the 21th Century, pgs. 345-354, World Scientific and Engineering Society Press, ISBN: 960-8052-06-8, July 1999 [romero99]:

Gomez, J., et al., "From Object-Oriented Conceptual Modeling to Component-Based Development" Database and Expert Systems Applications. Lecture Notes in Computer Science (1677) pgs. 332-341 Springer-Verlag, 1999, ISBN: 3-540-66448-3; ISSN: 0302-9743, Florencia (Italia) August 30, 1999 [gomez99]:

Torres, J., "Disseny i Implementació d'un Diccionari de Dades per a un Model Conceptual" (In Valenciano), Master Thesis, June 2000.

Pelechano, V., et al., "An Automatic Code Generation Process for Dynamic Specialization Based on Design Patterns and Formal Techniques", Actas de la IFIP International Conference on Software, Theory and Practice (ICS-2000), 16th IFIP World Computer Congress, pgs. 526-539, Pekin (China), August 2000, ISBN-7-5053-6100-4, Publishing House of Electronics Industry:
Teaches automatic code generation from conceptual models which have been reduced to a formal language specification. A conceptual model is first built that collects the desired properties of the program to be automatically written. That conceptual model is translated into a formal language specification. Then an execution model is applied to the conceptual model. The execution model accurately states the implementation dependent features in order to represent the Conceptual Model in a determined development environment. In other words, the execution model proposes a code generation strategy which obtains the representation of the modelling elements in a selected programming language according to a set of specific patterns. The execution model provides an architecture for the solution by means of architectural patterns and a code generation strategy to obtain the software components of the architecture. A multitier architecture of interface tier, business tier and persistence tier is taught. A code generation strategy that allows obtaining the software components of the business tier in a systematic way is taught. The code generation strategy defines precise mappings between conceptual patterns and its representation in code. The input to the process is the conceptual model made up of conceptual patterns based in OASIS concepts.

Pastor, O., "The OO Method Approach for Information Systems Modeling: From Object Oriented Conceptual Modeling to Automatic Programming", Information Systems Journal, Elsevier Science, November 2001, Vol. 26/7, pgs. 507-534 [Pastor010]:

Molina, P., "Especificación de Interfaz de Usuario en OO-Method" (In Spanish) Master Thesis, September 1998, DSIC/UPV, Valencia, Spain.

Insfrán, E., et al., "Ingeniería de Requisitos aplicada al modelado conceptual de interfaz de usuario" (In Spanish), In Procs. Of IDEAS'2001, Santo Domingo, Heredia, Costa Rica, CIT, pgs. 181-192, April, 2001.

Molina, P., et al., "Specifying Conceptual Interface Patterns in an Object-Oriented Method with Code Generation", In Proceedings of User Interfaces for Data Intensive Systems, UIDIS'2001, Zurich, Switzerland, IEEE Computer Society, pgs. 72-79, May 31, 2001 [Molina01]:

Molina, P., et al., "Prototipado rápido de interfaces de usuario". (In Spanish), In Procs. Of IDEAS'2002, La Habana, Cuba, pgs. 78-90, April 23, 2002 [Molina02a];

Molina, P., et al., "JUST-UI: A User Interface Specification Model" In Computer-Aided Design of User Interfaces III, Proceedings of the 4th International Conference on Computer-Aided Design of User Interfaces CADUI'2002, Kluwer Academic Publisher, Dordrecht, pgs. 63-74, Valenciennes, France, May 15, 2002 [Molina02c];

Molina, P., et al., "User Interface Conceptual Patterns", In Proceedings of the 4th International Workshop on Design Specification & Verification of Information Systems DSV-IS'2002, Rostock, Germany, pgs. 201-214, June 4, 2002 [Molina 02d];

Ingenieria de requisitos aplicada al modelado conceptual de interfacz de usuario, April 3, 2001 [insfran01mp];

Eager, et al., U.S. Patent 5,960,200, Filed Sep. 16, 1996, Date of Patent Sep. 28, 1999.

Scandura, U.S. Patent 6,275,976 B1, Filed Feb. 25, 1997, Date of Patent Aug. 14, 2001.

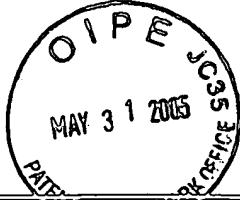
Respectfully submitted,

Dated: 5/26/05

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Ronald Craig Fish
Reg. No. 28,843
Attorney for Applicant(s)

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington D.C. 20231 on 5/26/05
(Date Of Deposit)

Ronald C. Fish
Ronald Craig Fish, President
Ronald Craig Fish a Law Corporation
Reg. No. 28,843



SHEET 1 OF 3

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| FORM PTO-1449 (Rev. 2-32) | U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE | ATTY. DOCKET NO. CHG-001.3P | SERIAL NO. 09/872,333 |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | APPLICANT PASTOR, et al. | |
| (USE SEVERAL SHEETS IF NECESSARY) | | FILING DATE 6/1/01 | GROUP 2124 |

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| B | 6,275,976 B1 | Aug. 14, 2001 | Scandura | 717 | 1 | Feb. 25, 1997 |
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| T | | Pelechano, V., "OO-Method: Implementación de un Entorno Gráfico para el Análisis y Diseño de Sistemas De Información OO" (In Spanish), Master Thesis, 1994. |
| U | | Pelechano, V., et al., "CASE OO-Method: Un Entorno de Producción Automática de Software" (In Spanish) Actas de la Convención Informática Latina CIL-95, Barcelona, June, 1995. |

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SHEET 2 OF 3

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| | B <u>Pastor, O., et al., "An Object Oriented Methodological Approach for Making Automated Prototyping Feasible", Database and Expert Systems Applications. Lecture Notes in Computer Science (1134) pgs. 29-39 Springer-Verlag, 1996. ISBN: 3-540-61656-x, ISSN: 0302 9743, Zurich (Suisse).</u> |
| | C <u>Pelechano, V., et al., "Implementación y comprobación de restricciones de integridad dinámicas en entornos de programación orientados a objetos" (In Spanish), II Jornadas Nacionales de Ingeniería de Software, Universidad el País Vasco, San Sebastián, 3-5 Septiembre 1997, pgs. 101-117.</u> |
| | D <u>Pastor, O., et al., "Linking Object-Oriented Conceptual Modeling with Object-Oriented Implementation in Java", VIII Conference on Database and Expert Systems Applications, (DEXA'1997), ISBN: 3-540-63478-9, LNCS (1308), Toulouse, France, 1997.</u> |
| | E <u>Pastor, O., et al., "OO-METHOD: An OO Software Production Environment Combining Conventional and Formal Methods", 9th International Conference on Advanced Information Systems Engineering, (CAiSE'1997) ISBN: 3-540-63107-0, LNCS (1250), Barcelona, Spain, 1997.</u> |
| | F <u>Pastor, O., et al., "Object Oriented Conceptual Modeling Techniques to Design and Implement a Sound and Robust Oracle Environment" Actas de Oracle OpenWorld 97, Viena (Austria) 7-11 Abstract publicado en Oracle OpenWorld Review pg. 36, April, 1997.</u> |
| | G <u>Romero, J., et al., "Una Herramienta de Generación Automática de Software" (In Spanish) In Procs of IDEAS-98 - I Workshop Iberoamericano en Ingeniería de Requisitos y Ambientes Software, Porto Alegre, Brasil, April, 1998.</u> |
| | H <u>Gomez, J., et al., "The Execution Model: A Component-Based Arquitecture to Generate Software Components from Conceptual Models" In Procs of International Workshop on Component-based Information Systems Engineering, 10th International Conference on Advanced Information Systems Engineering, CAiSE-98 Pisa (Italia), pgs. 87-94, ISSN 1170-487X.</u> |
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| | K <u>Romero, J., et al., "Automatic Object-Oriented Visual Programming with OO-METHOD", Software and Hardware Engineering for the 21th Century, pgs. 345-354, World Scientific and Engineering Society Press, ISBN: 960-8052-06-8.</u> |

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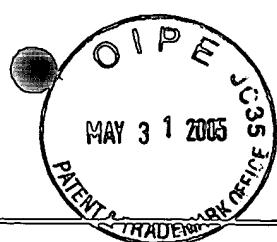
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| | F | Inifrán, E., et al., "Ingeniería de Requisitos aplicada al modelado conceptual de interfaz de usuario" (In Spanish), In Procs. Of IDEAS'2001, Santo Domingo, Heredia, Costa Rica, CIT, pgs. 181-192, April, 2001. |
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| B | 6,275,976 B1 | Aug. 14, 2001 | Scandura | 717 | 1 | Feb. 25, 1997 |
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| T | | <u>Pelechano, V., "OO-Method: Implementación de un Entorno Gráfico para el Análisis y Diseño de Sistemas De Información OO" (In Spanish), Master Thesis, 1994.</u> |
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SHEET 2 OF 3

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| FORM PTO-1449 (Rev. 2-32) | U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE | ATTY. DOCKET NO. CHG-001 RCE1 | SERIAL NO. 09/543,085 |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | APPLICANT PASTOR, et al. | |
| (USE SEVERAL SHEETS IF NECESSARY) | | FILING DATE 04/04/2000 | GROUP 2124 |

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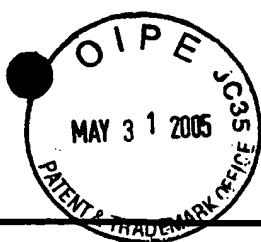
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SHEET 1 OF 1

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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | APPLICANT Pastor, et al. | |
| (USE SEVERAL SHEETS IF NECESSARY) | | FILING DATE 4/4/2000 | GROUP 2122 |

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| EXAMINER INITIAL | DOCUMENT NUMBER | DATE | NAME | CLASS | SUB CLASS | FILING DATE IF APPROP. |
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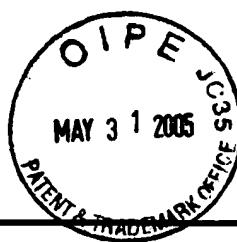
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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | APPLICANT Pastor, et al. | |
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U. S. PATENT DOCUMENTS

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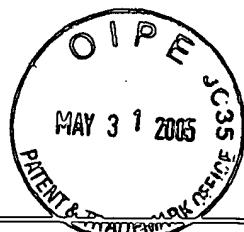
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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | APPLICANT PASTOR | |
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FORM PTO-1449
(Rev. 2-32)

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.
CHG-001.1P

SERIAL NO.
09/872,413

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

APPLICANT
Iborra and Pastor

(USE SEVERAL SHEETS IF NECESSARY)

FILING DATE
06/01/2001

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SHEET 2 OF 2

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